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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Richard P. McClellan, et al.

Serial No.: 09/655,477

Group Art Unit: 2876

Filed: September 05, 2000

Examiner: April A. Nowlin

For: BOX DETECTOR IN BARCODE ENVIRONMENT

BRIEF FOR APPELLANTS
UNDER 35 CFR 1.192(c)

Hon. Commissioner of Patents January 29, 2003

Washington D.C. 20231 Los Angeles, CA 90024

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This is an appeal from the Examiner of Group Art Unit 2876 rejecting claims 6-9, which represent all of the claims in the case.

REAL PARTY IN INTEREST

The real party in interest is RJS Systems International, which was acquired by Printronix.

RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences.

STATUS OF CLAIMS

Pending: Claims 6-9.
Cancelled: Claims 1-5.
Appealed: Claims 6-9.

STATUS OF AMENDMENTS

No amendment was filed subsequent to the final rejection.

SUMMARY OF THE INVENTION

The present invention is an improvement in a prior art system such as shown in applicant's Fig. 1, where boxes (12) move along a conveyor belt (16) and a barcode scanner (30) reads bar codes (20) on the boxes. In the prior art, a separate box detector (60) detected the leading edge of a box. In one example, when a box is detected but no readable barcode is detected for that box, then the box is pushed out onto a location for defective boxes.

Fig. 2 illustrates a system of the present invention (100) where reflections from the scanner (30) are delivered not only to a barcode reader circuit (52) but also to a box detecting circuit (102). This eliminates the need for a separate box detector, but gives rise to the possibility that the circuit could mistake elements of a barcode or other printing on the side of a box for the leading edge of the box. To avoid mistaking a barcode or printing on a box for the leading edge of a box, the system makes detections such as shown in applicant's Figs. 6 and 7. The box detecting circuit is constructed to generate a box-detected signal when the output from the sensor increases from a low

represents reflections from a box. The circuit ignores an increase in reflectance that follows a decrease in reflectance that is so brief that it indicates a bar element (130A in Fig. 5) or similar thin marking on the box. This avoids a false detection of a box when all that is detected is a dark bar element or similarly thin marking on the box.

By avoiding the need to use a barcode scanner and a separate box detector, applicant avoids the need to separately mount two different detectors.

ISSUES

All of the claims were rejected as anticipated by U.S. patent 6,325,289 by Mazzone. Thus, the issue is whether or not each of these claims are obvious in view of the reference.

GROUPING OF CLAIMS

The rejected claims do not stand or fall together. Each claim is discussed in the Argument section of this Appeal Brief.

ARGUMENT

1. The Prior Art

Mazzone (6,325,289).

2. Discussion of Each Claim in View of the Reference

Claim 6 was rejected as anticipated by Mazzone. Claim 6 describes a system such as shown in applicant's Fig. 6, where boxes or other containers

dark bar elements and light space elements. A box detecting circuit is constructed to generate a box-detected signal when the magnitude of output from a laser scanner increases from a low level (B1 in Fig. 7) representing no box to above a predetermined level (B3) which represents reflections from a box. The circuit ignores an increase in reflectance that follows a decrease in reflectance that is so brief that it indicates a bar element (130A in Fig. 5) or similar thin marking on the box. This avoids a false detection of a box when all that is detected is a dark bar element or similarly thin marking on the box.

Mazzone shows, in his Fig. 1, an inlet detector 16 that detects when a box arrives at a certain zone (62). He also shows a scanner 4 that is activated when a box is detected. The scanner 4 transmits a laser beam along a first scan plane 6 to detect the distance from the scanner 4 to the box upper face. He uses an actuator 141 (Fig. 2) to move a focusing lens 142 toward and away from the laser source 5 to adjust for the distance to the top of the box. The scanner scans its laser beam along a second plane 7 (Fig. 1) and uses the reflection to detect a bar code 10.

Mazzone does not describe any details of his inlet detector 16 (Fig. 1) that detects a box entering the zone 62, and his detector 16 is certainly different from his barcode scanner 4. His column 6, lines 44-47 is about the only mention of his box/object detector. Mazzone does not describe his scanner 4 as including a circuit that distinguishes between the dark space between two boxes and the dark space between two highly reflective elements of a barcode.

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Since Mazzone does not describe a box detector integrated into a barcode scanner so two separate scanning devices do not have to be separately purchased and separately mounted, Mazzone does not anticipate applicant's claim 6 which describes a box detecting circuit integrated into a barcode scanner. Also, Mazzone does not describe details of his box detecting circuit, and does not describe it having a circuit part that ignores an increase in reflectance from a barcode space element that follows a brief decrease from an adjacent barcode bar element, to ignore the barcode elements and detect only the leading edges of boxes. Accordingly, applicant believes that claim 6 is not anticipated by Mazzone.

Claim 7, which depends from claim 6, describes the box detecting circuit as indicating detection of a box only when the magnitude of the sudden increase in reflectance remains for at least a minimum time, with only brief drops. This avoids falsely detecting the leading edge of a box when all that is detected is a space element of a barcode that has followed a dark bar element. Since Mazzone does not describe any details of his box inlet detector 16, he does not describe this construction of a box detector.

Claim 8 describes a system that includes both a barcode reader and a container detecting means, which are both connected to a single laser reflection sensor that detects light reflected from a scanning laser source. As discussed above, Mazzone does not show his box detector 16 connected to the laser reflection sensor of his barcode scanner 4. Since he does not describe details of his box detector 16, he does not describe detecting means constructed to detect the higher reflectance of the container than the space

containers by the smaller length of a barcode compared to the space between subsequent containers. Since Mazzone does not describe the detection of a container following a space or how to avoid mistaking a barcode for a space between boxes, in addition to a barcode reader and box detector connected to the same laser reflection sensor, applicant believes that claim 8 should be allowed.

Claim 9 describes a method for detecting the passage of the leading and trailing ends of a container by detecting increases and decreases of the output of the sensor that also detects bar codes. The method includes detecting a leading end of the container only when the higher reflectance magnitude continues for a predetermined period of time. The detection of the trailing end requires detection of the decreased reflectance magnitude for longer than the period of a bar element. Mazzone does not describe using the output of a barcode scanner to detect boxes, or describe how to detect a leading end of a container while not mistaking a barcode element for the leading end of a container.

It is respectfully urged that for these reasons a reversal of the Examiner is in order. An oral hearing is not requested.

Respectfully submitted,



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